What is claimed is:

1. An optical service agent for managing a service level agreement (SLA) for a user in an optical communication system, the optical service agent comprising:

a user-to-network interface (UNI) for interfacing with an optical communication network;

a peer-to-peer interface for interfacing with peer users; and

optical service logic for interacting with the optical communication network via the UNI and with the peer users via the peer-to-peer interface for managing said SLA for the user.

2. The optical service agent of claim 1, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

3. The optical service agent of claim 1, wherein the optical service logic is operably coupled to monitor and analyze a connection in real-time for determining SLA compliance.

4. The optical service agent of claim 1, wherein the optical service logic is operably coupled to gather and maintain statistical information relating to a connection.

5. The optical service agent of claim 4, wherein the optical service logic is operably coupled to analyze the statistical information off-line for determining SLA compliance, patterns, and trends.

6. The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with a service provider to enforce penalty provisions in the SLA.

7. The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA.

8. The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with a service provider to negotiate "replacement" services for a breach of the SLA.

9. The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with various network elements to rectify a breach of the SLA.

10. The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with the service provider to dynamically modify the SLA based upon changing user requirements.

11. The optical service agent of claim 1, wherein the optical service logic is operably coupled to interface with a billing/accounting system to provide SLA-related information.

12. A device comprising:

a user application requiring communication services from an optical communication network; and

an optical service agent for managing a service level agreement (SLA) for the user application.

13. The device of claim 12, wherein the optical service agent comprises:

a user-to-network interface (UNI) for interfacing with the optical communication network;

a peer-to-peer interface for interfacing with peer users; and

optical service logic for interacting with the optical communication network via the UNI and with the peer users via the peer-to-peer interface for managing said SLA for the user application.

14. The device of claim 13, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

15. The device of claim 13, wherein the optical service logic is operably coupled to monitor and analyze a connection in real-time for determining SLA compliance.

16. The device of claim 13, wherein the optical service logic is operably coupled to gather and maintain statistical information relating to a connection.

17. The device of claim 16, wherein the optical service logic is operably coupled to analyze the statistical information off-line for determining SLA compliance, patterns, and trends.

18. The device of claim 13, wherein the optical service logic is operably coupled to interact with a service provider to enforce penalty provisions in the SLA.

19. The device of claim 13, wherein the optical service logic is operably coupled to interact with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA.

20. The device of claim 13, wherein the optical service logic is operably coupled to interact with a service provider to negotiate "replacement" services for a breach of the SLA.

21. The device of claim 13, wherein the optical service logic is operably coupled to interact with various network elements to rectify a breach of the SLA.

22. The device of claim 13, wherein the optical service logic is operably coupled to interact with the service provider to dynamically modify the SLA based upon changing user requirements.

23. The device of claim 13, wherein the optical service logic is operably coupled to interface with a billing/accounting system to provide SLA-related information.

24. A system comprising:

an optical communication network; and

a first network user coupled to the optical communication network, wherein the first network user comprises an optical service agent for obtaining optical communication services from the optical communication network via a user-to-network interface (UNI) and for managing a service level agreement (SLA) for the first network user.

25. The system of claim 24, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

26. The system of claim 24, wherein the optical service agent is operably coupled to monitor and analyze a connection in real-time for determining SLA compliance.

27. The system of claim 24, wherein the optical service agent is operably coupled to gather and maintain statistical information relating to a connection.

28. The system of claim 30, wherein the optical service agent is operably coupled to analyze the statistical information off-line for determining SLA compliance, patterns, and trends.

29. The system of claim 24, wherein the optical service agent is operably coupled to interact with a service provider to enforce penalty provisions in the SLA.

30. The system of claim 24, wherein the optical service agent is operably coupled to interact with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA.

31. The system of claim 24, wherein the optical service agent is operably coupled to interact with a service provider to negotiate "replacement" services for a breach of the SLA.

32. The system of claim 24, wherein the optical service agent is operably coupled to interact with various network elements to rectify a breach of the SLA.

33. The system of claim 24, wherein the optical service agent is operably coupled to interact with the service provider to dynamically modify the SLA based upon changing user requirements.

34. The system of claim 24, wherein the optical service agent is operably coupled to interface with a billing/accounting system to provide SLA-related information.

35. A method for managing a service level agreement (SLA) for a user in an optical communication system, the method comprising at least one of:

monitoring and analyzing a connection in real-time for determining SLA compliance;

gathering and maintaining statistical information relating to a connection;

analyzing the statistical information off-line for determining SLA compliance, patterns, and trends;

interacting with a service provider to enforce penalty provisions in the SLA;

interacting with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA;

interacting with a service provider to negotiate "replacement" services for a breach of the SLA;

interacting with various network elements to rectify a breach of the SLA;

interacting with the service provider to dynamically modify the SLA based upon changing user requirements; and

interfacing with a billing/accounting system to provide SLA-related information.

36. The method of claim 35, wherein monitoring and analyzing a connection in real-time for determining SLA compliance comprises at least one of:

monitoring the integrity of the connection to verify that the connection meets certain SLA criteria;

monitoring traffic on the connection to verify that the connection meets certain SLA criteria;

querying a core optical communication network in order to obtain information compiled by the core optical communication network for verifying that the connection meets certain SLA criteria; and

querying peer users in order to obtain information compiled by the peer users for verifying that the connection meets certain SLA criteria.

37. The method of claim 35, wherein interacting with various network elements to rectify a breach of the SLA comprises at least one of:

re-requesting the connection; and

notifying a service provider of the SLA breach; and

orchestrating various network changes to resolve or work around the SLA breach.

38. The method of claim 35, wherein interacting with the service provider to dynamically modify the SLA based upon changing user requirements comprises:

determining changing requirements of the user; and

dynamically re-negotiating the SLA to meet the changing requirements of the user.